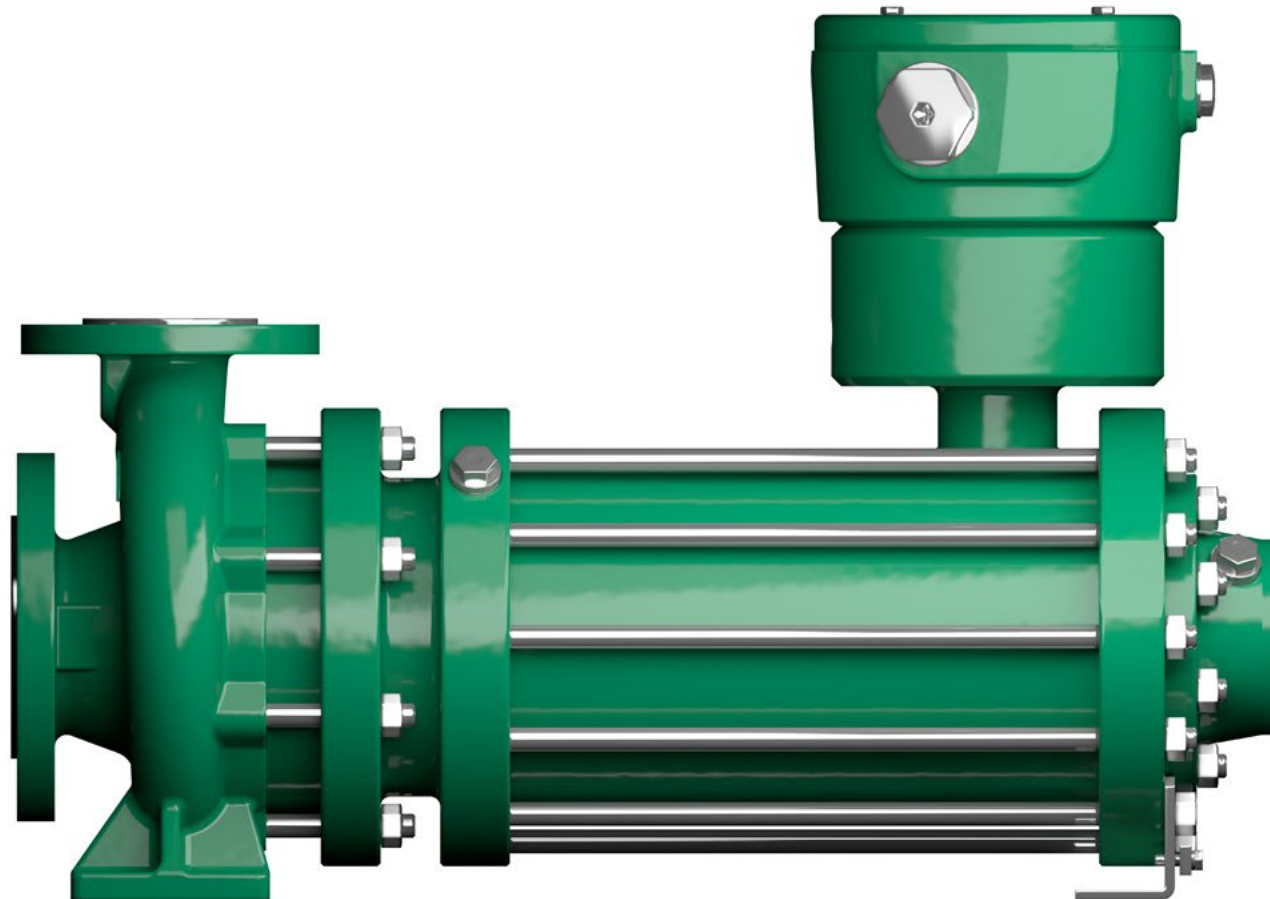


MODEL INFORMATION  
CANNED MOTOR PUMP TYPE CN / CNF

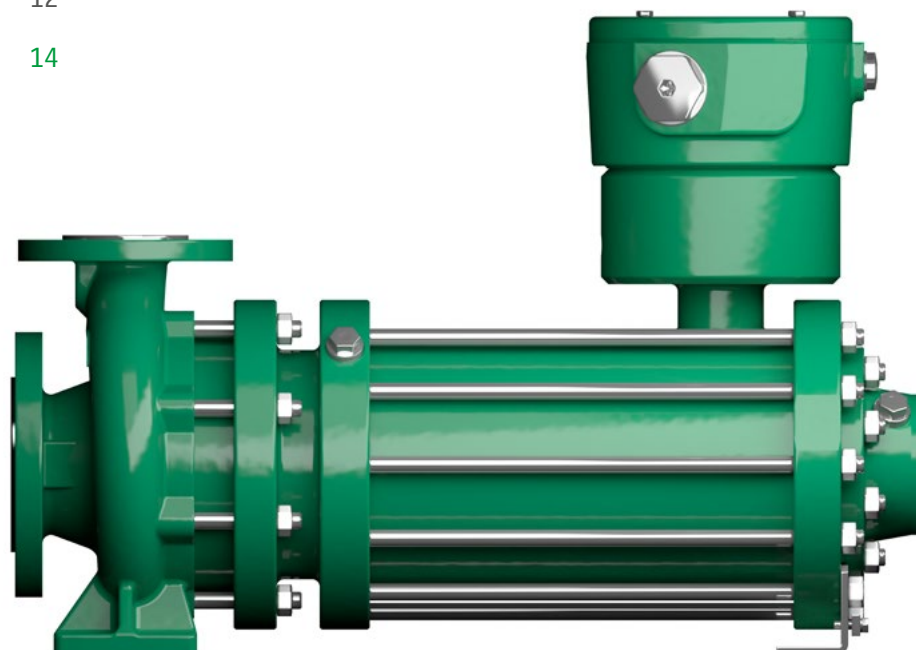
# HERMETIC *V-Line*



**ZART®**  
*simply best balance*

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**Information**

**Operational areas / applications**

For the safe transport of aggressive, toxic, hot, explosive, valuable and flammable liquids and liquefied gases.

**Model / design**

Horizontal, sealless spiral housing pumps in process design with completely closed canned motor with radial impeller, single-stage, single-flow. The connection measurements of the housing comply with EN 22 858 / ISO 2858.

**Canned motor pump type CN**

The CN model is a standard design of the HERMETIC canned motor pump and is suitable for conveying all common liquids that are not close to steam pressure (not boiling media).

**Canned motor pump type CNF**

The CNF model is the version for liquefied gases, boiling media and condensate. With an integrated auxiliary impeller and internal fluid return, it is suitable for conveying liquids close to steam pressure.

**Drive**

The rotor lining, one of our core competences, is manufactured using the compact extrusion method and as a nickel-base alloy, it is an essential component of the highly efficient canned motor. The pressure-resistant enclosed version of our canned motor complies with explosion protection according to Directive 2014 / 34 / EU. The canned motor filled with liquid accelerates to the operating speed in seconds. It is wear-free and maintenance-free during continuous operation due to the hydrodynamic sleeve bearings. The canned motor with low noise and vibration and offers double security to prevent leaks.

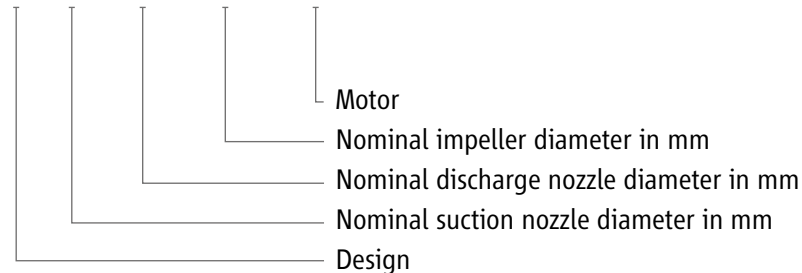
**Operating data**

Frequency:	50 Hz	60 Hz
Pump capacity [Q]:	1.5 to 110 m <sup>3</sup> /h	1.8 to 130 m <sup>3</sup> /h
Pumping head [H]:	12 to 100 m	17 to 145 m
Output power [P2]:	max. 41 kW	max. 48 kW
Conveyed material temperature [t]:	-40 °C to +120 °C	-40 °C to +120 °C
Operating pressure:	up to 25 bar	up to 25 bar

(Extended rating scheme available on request)

**Pump and hydraulic denomination**

**CN 50 – 32 – 200 N34L-2**



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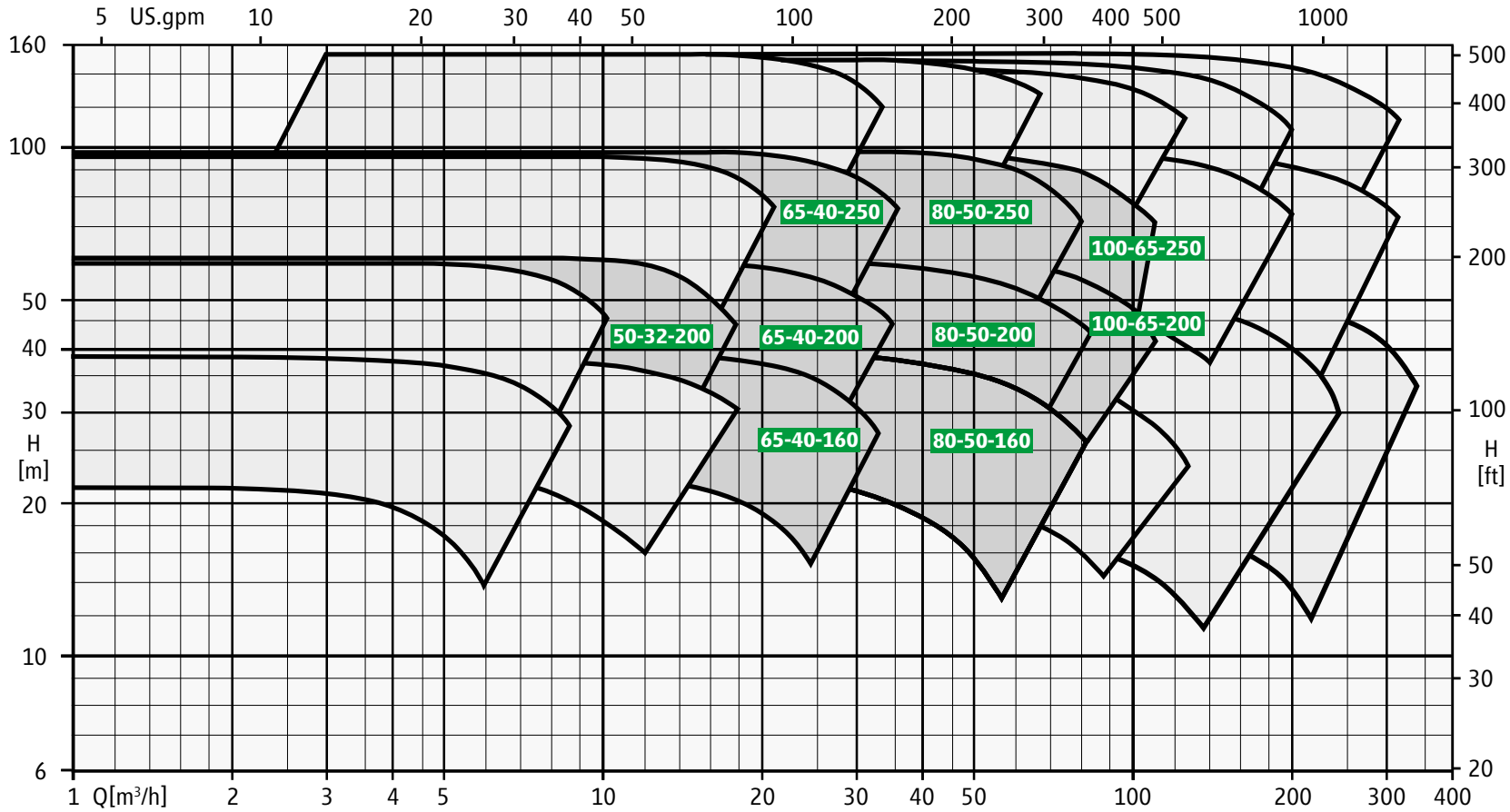
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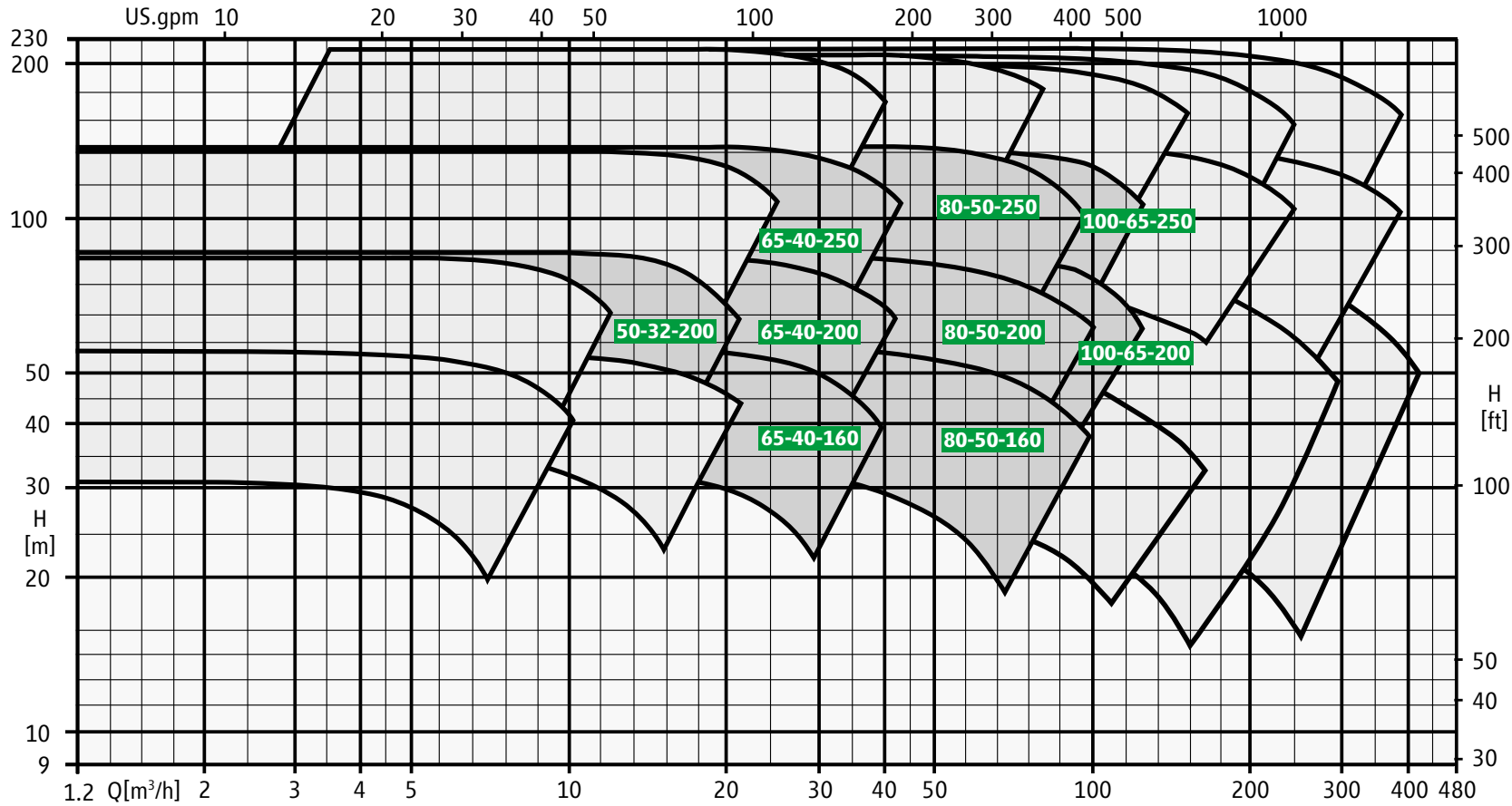
3000 rpm 50 Hz



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3600 rpm 60 Hz

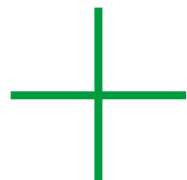


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## Advantages of the canned motor pump

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Best Available Pump Technology according to IPCC / TA-LUFT

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Leakage-free, long-lasting operation: protection of personnel and environment

---

No shaft seals

---

Low space requirement

---

High level of reliability

---

Low expenditure for repairs / spare parts

---

Simple assembly and installation

---

Long service life of pump and motor

---

Low life cycle costs

---

Very smooth running

---

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**Advantages of the canned motor pump**

100 % tightness by two safety casings

Corrosion-resistant rotor lining

Explosion-proof motor (2014 / 34 / EU), vacuum-dried N<sub>2</sub>-inertised

Thermal motor protection to prevent overload

Standardised flange connections according to EN / ISO / ANSI

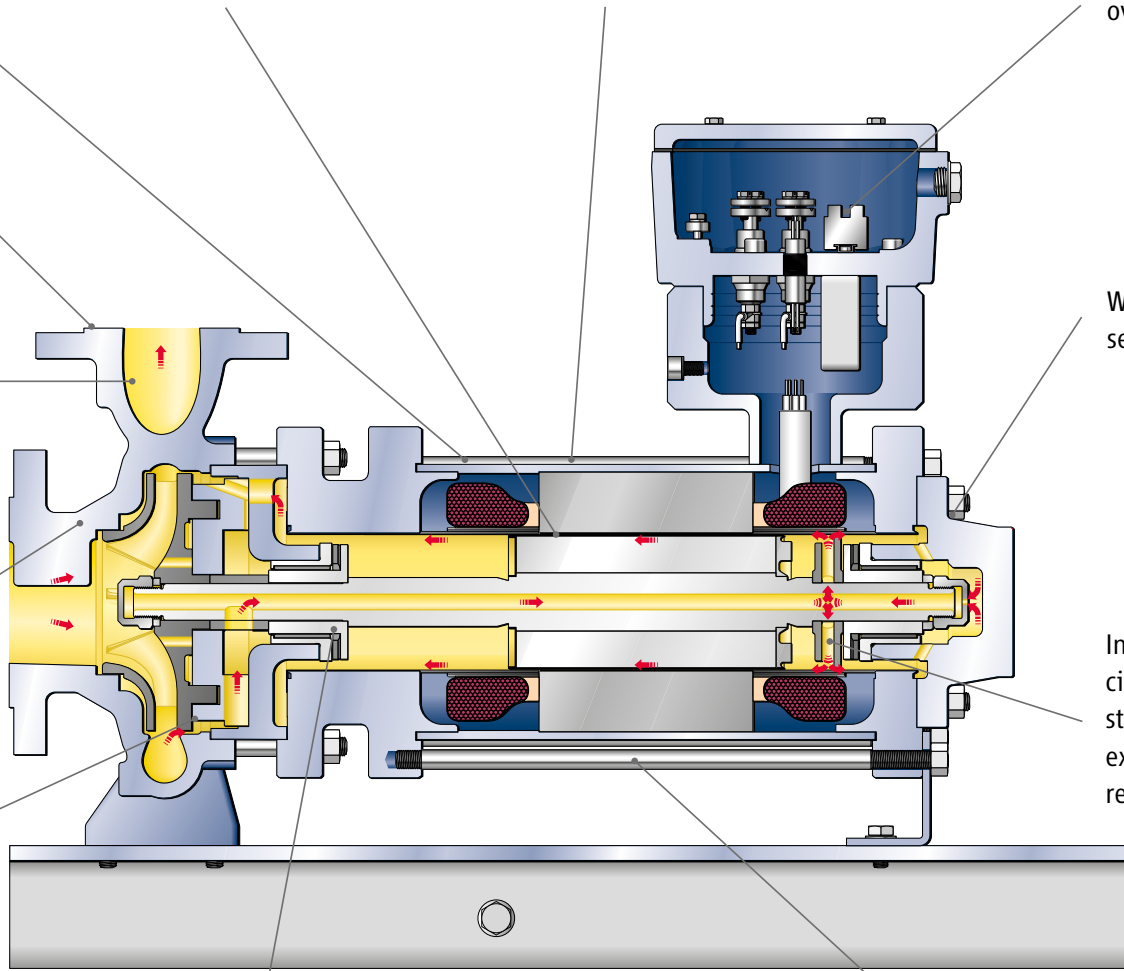
High level of functional safety by self-venting

Without shaft seal / sealing system

Standardised hydraulics with a block design and foot mounting

Internal partial flow circulation (also for high steam pressures), no external return line required

Contactless operation by hydrodynamic axial thrust balancing (ZART®)



Wear-resistant and smooth running slide bearing (no roller bearings subject to wear)

No coupling (no alignment of pumps / motor shaft required)

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**Modular pump / motor systems**

Hydraulics	Motor output power [P2 at 50 Hz / 60 Hz] max.			
	N34L-2	N34XL-2	N54XL-2	N64XL-2
CN / CNF	8.0 kW / 10.5 kW	14.8 kW / 17.2 kW	24.0 kW / 27.0 kW	41.0 kW / 48.0 kW
50-32-200				
65-40-160				
65-40-200				
65-40-250				
80-50-160				
80-50-200				
80-50-250				
100-65-200				
100-65-250				

Extended rating scheme available on request

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## Materials

VDMA No.	Parts designation	Material design S1 Pressure rating PN 25	Material design A8 Pressure rating PN 16
<b>Parts coming into contact with conveying fluid</b>			
102	Volute casing	1.0619+N	1.4408
230	Impeller	JL 1040	1.4408
230	Auxiliary impeller <sup>(1)</sup>	1.4581	1.4581
360	Bearing cover	1.0460	1.4571
381	Bearing support	1.0570	1.4571
400	Gasket	AFM34 or Gylon	AFM34 or Gylon
400	Spiral gasket	1.4404 / graphite	1.4404 / graphite
472	Slide ring	PTFE / K	PTFE / K
513	Wear ring insert	JL 1040	1.4571
529	Bearing sleeve	1.4571 / W5 <sup>(2)</sup>	1.4571 / W5 <sup>(2)</sup>
545	Bearing bush	1.4571 / SiC30	1.4571 / SiC30
816	Stator liner	2.4610	2.4610
819	Motor shaft	1.4021 / 1.4571	1.4571
<b>Parts that do not come into contact with conveying liquid</b>			
811	Motor casing	C-steel <sup>(3)</sup>	C-steel <sup>(3)</sup>
812	Motor casing cover	1.4571	1.4571

(1) parts only for CNF

(2) tungsten carbide coating

(3) material number depends on motor size

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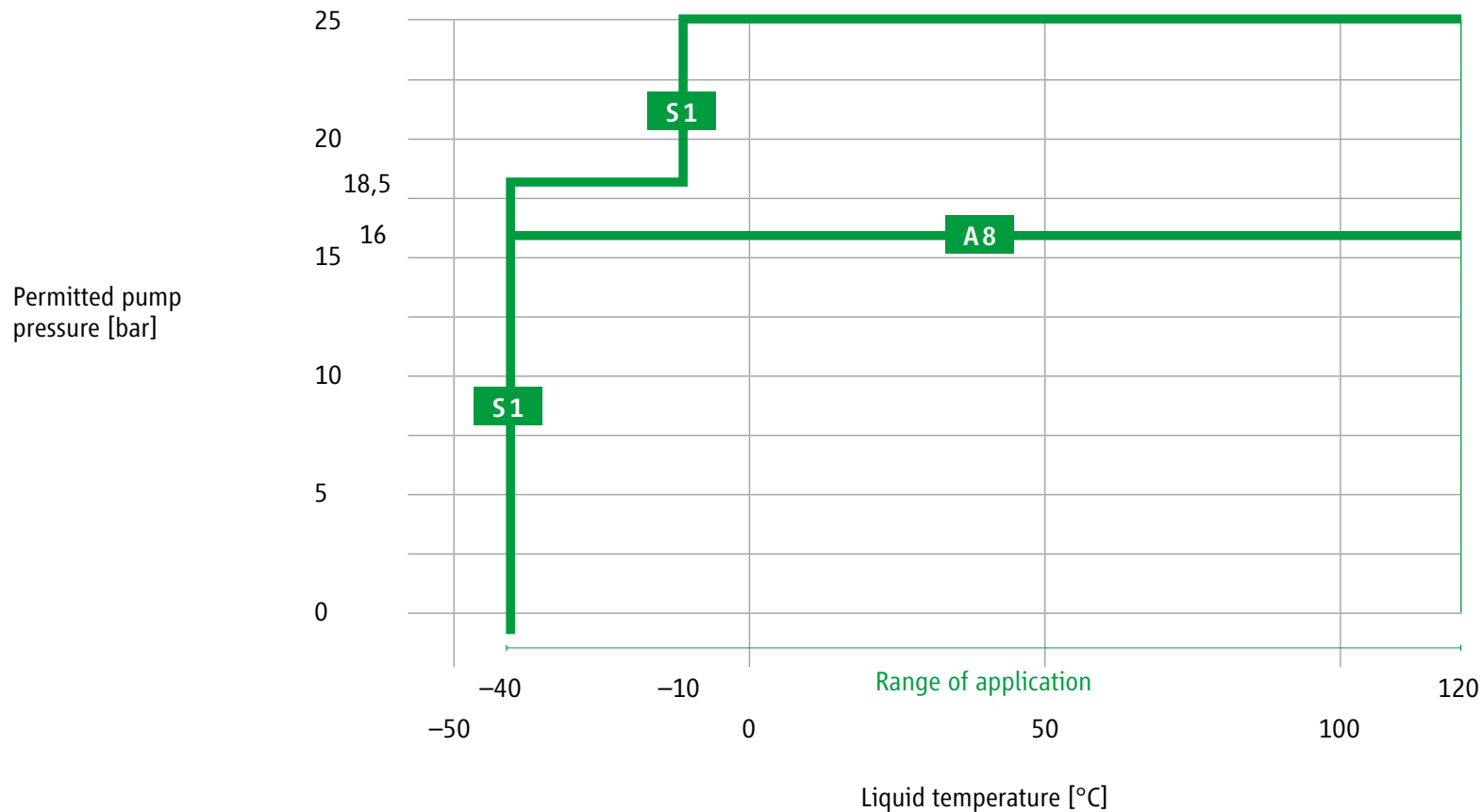
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Pressure and temperature limits

Material design S1 and A8



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## Canned motors

### Canned motor data

Output power P2:	max. 41 kW (50 Hz) / max. 48 kW (60 Hz)
Voltage (±10%) / frequency / circuit:	400V / 50 Hz / delta 480V / 60 Hz / delta 500V / 50 Hz / delta 600V / 60 Hz / delta 690V / 50 Hz / star (all canned motors are suitable for inverter operation)
Insulation class:	H-180
Operating mode:	S1 according to EN 60034-1
Protection class:	IP 67 (stator), IP 55 (terminal box)
Motor protection in winding:	Thermistor KL180 (standard), PT100 (option)
Rotation monitoring:	ROMi

Explosion protection according to Directive 2014 / 34 / EU

Incl. EC type-examination certificate

Marking:  II 2 G Ex de IIC T3 to T6

### Noise expectancy values

Motors	N34L-2	N34XL-2	N54XL-2	N64XL-2
Output power [P2 at 50 Hz]	8.0 kW	14.8 kW	24.0 kW	41.0 kW
max. expected sound pressure level dB(A) at 50 Hz	57	59	61	64
Output power [P2 at 60 Hz]	10.5 kW	17.2 kW	27.0 kW	48.0 kW
max. expected sound pressure level dB(A) at 60 Hz	58	60	62	64

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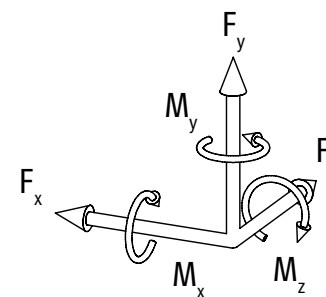
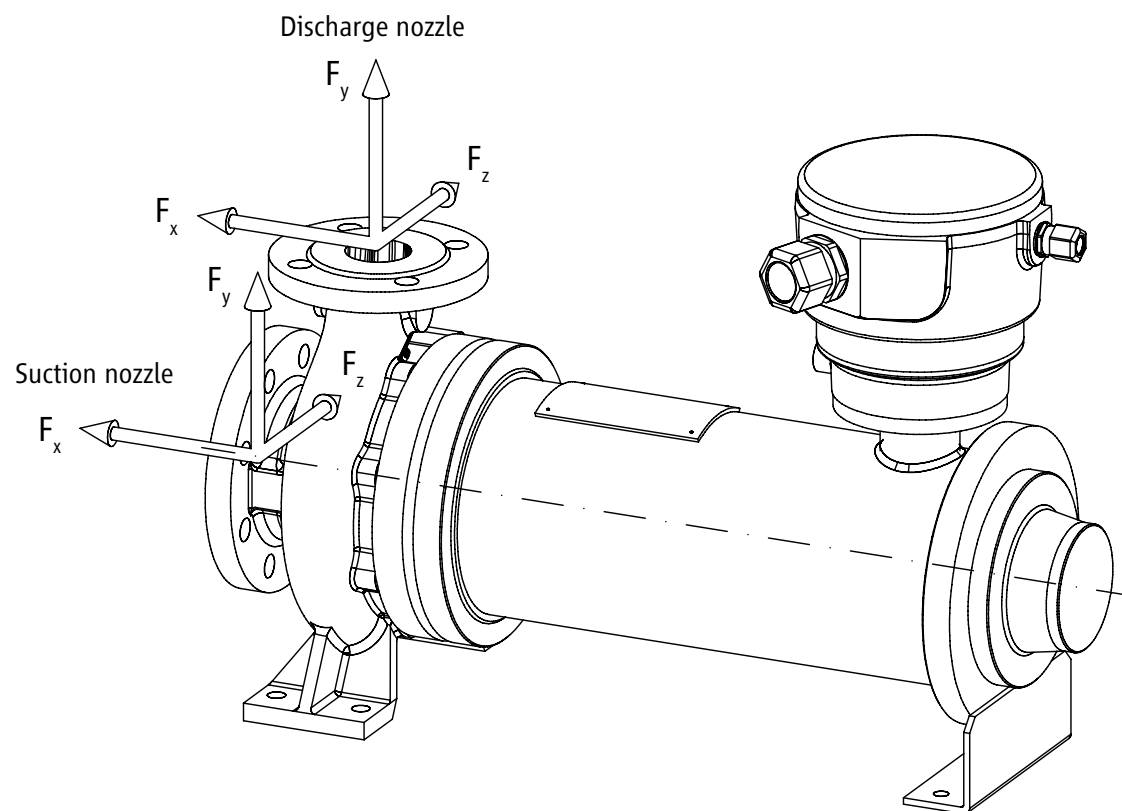
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## Forces and torques

The pumps are designed so that they can absorb forces and torques according to ISO 5199.



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**Permitted forces and torques on the pump nozzles (installation with base plate and firm foundation)**

Material design **S1** Material design **A8** up to 120 °C

Sizes	Forces						Torques					
	Suction nozzle in N			Discharge nozzle in N			Suction nozzle in Nm			Discharge nozzle in Nm		
	F <sub>x</sub>	F <sub>y</sub>	F <sub>z</sub>	F <sub>x</sub>	F <sub>y</sub>	F <sub>z</sub>	M <sub>x</sub>	M <sub>y</sub>	M <sub>z</sub>	M <sub>x</sub>	M <sub>y</sub>	M <sub>z</sub>
50-32-200	1350 <b>S1</b>	900 <b>S1</b>	1100 <b>S1</b>	700 <b>S1</b>	450 <b>S1</b>	550 <b>S1</b>	700 <b>S1</b>	550 <b>S1</b>	350 <b>S1</b>	450 <b>S1</b>	350 <b>S1</b>	250 <b>S1</b>
	1150 <b>A8</b>	800 <b>A8</b>	950 <b>A8</b>	600 <b>A8</b>	350 <b>A8</b>	500 <b>A8</b>	650 <b>A8</b>	500 <b>A8</b>	300 <b>A8</b>	400 <b>A8</b>	300 <b>A8</b>	200 <b>A8</b>
65-40-160	1750 <b>S1</b>	1150 <b>S1</b>	1400 <b>S1</b>	850 <b>S1</b>	550 <b>S1</b>	700 <b>S1</b>	1150 <b>S1</b>	850 <b>S1</b>	600 <b>S1</b>	550 <b>S1</b>	450 <b>S1</b>	300 <b>S1</b>
65-40-200												
65-40-250												
80-50-160	2150 <b>S1</b>	1400 <b>S1</b>	1700 <b>S1</b>	1100 <b>S1</b>	700 <b>S1</b>	900 <b>S1</b>	1450 <b>S1</b>	1100 <b>S1</b>	750 <b>S1</b>	700 <b>S1</b>	550 <b>S1</b>	350 <b>S1</b>
80-50-200												
80-50-250												
100-65-200	2700 <b>S1</b>	1750 <b>S1</b>	2150 <b>S1</b>	1400 <b>S1</b>	900 <b>S1</b>	1150 <b>S1</b>	2000 <b>S1</b>	1500 <b>S1</b>	1000 <b>S1</b>	1150 <b>S1</b>	850 <b>S1</b>	600 <b>S1</b>
100-65-250	2300 <b>A8</b>	1500 <b>A8</b>	1850 <b>A8</b>	1200 <b>A8</b>	750 <b>A8</b>	1000 <b>A8</b>	1750 <b>A8</b>	1300 <b>A8</b>	900 <b>A8</b>	1000 <b>A8</b>	750 <b>A8</b>	500 <b>A8</b>

The specifications for the forces and torques only apply for static piping.

The specifications apply for installation with completely encapsulated base plate screwed on a rigid even foundation.

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## Documentation and tests

---

### Documentation according to HERMETIC Standard, consisting of:

Operating manual for the HERMETIC pump

---

Technical specifications

---

Sectional and assembly drawings

---

Dimensional drawing

---

Cable connection diagram

---

Pump characteristic curve design

---

Acceptance report and pump characteristic curve

---

Electric test report

---

Slip ring report / gap size report, slide bearing clearancies

---

Factory certificates according to DIN EN 10 204 / 2.2

---

EC type-examination certificate PTB 99 ATEX

---

EU Declaration of Conformity

---

TÜV certificates

---

### Coating according to HERMETIC Standard

Thickness: 100-200 µm (primer, then 2 coats)

---

Colour: RAL 7030 (stone grey)

---

Base plate: powder-coated

---

### Standard tests

Hydrostatic pressure test with 1.5x nominal pressure

---

Factory certificates according to DIN EN 10 204 / 2.2

---

Test run according to DIN EN ISO9906, Class 2 B (5 measuring points)

---

Balancing of the shaft and impeller according to DIN ISO 1940, 6.3 [without report]

---

Axial thrust measurement

---

Leak test for the complete pump with N<sub>2</sub> at 6 bar

---

### Optional test

NPSH-test

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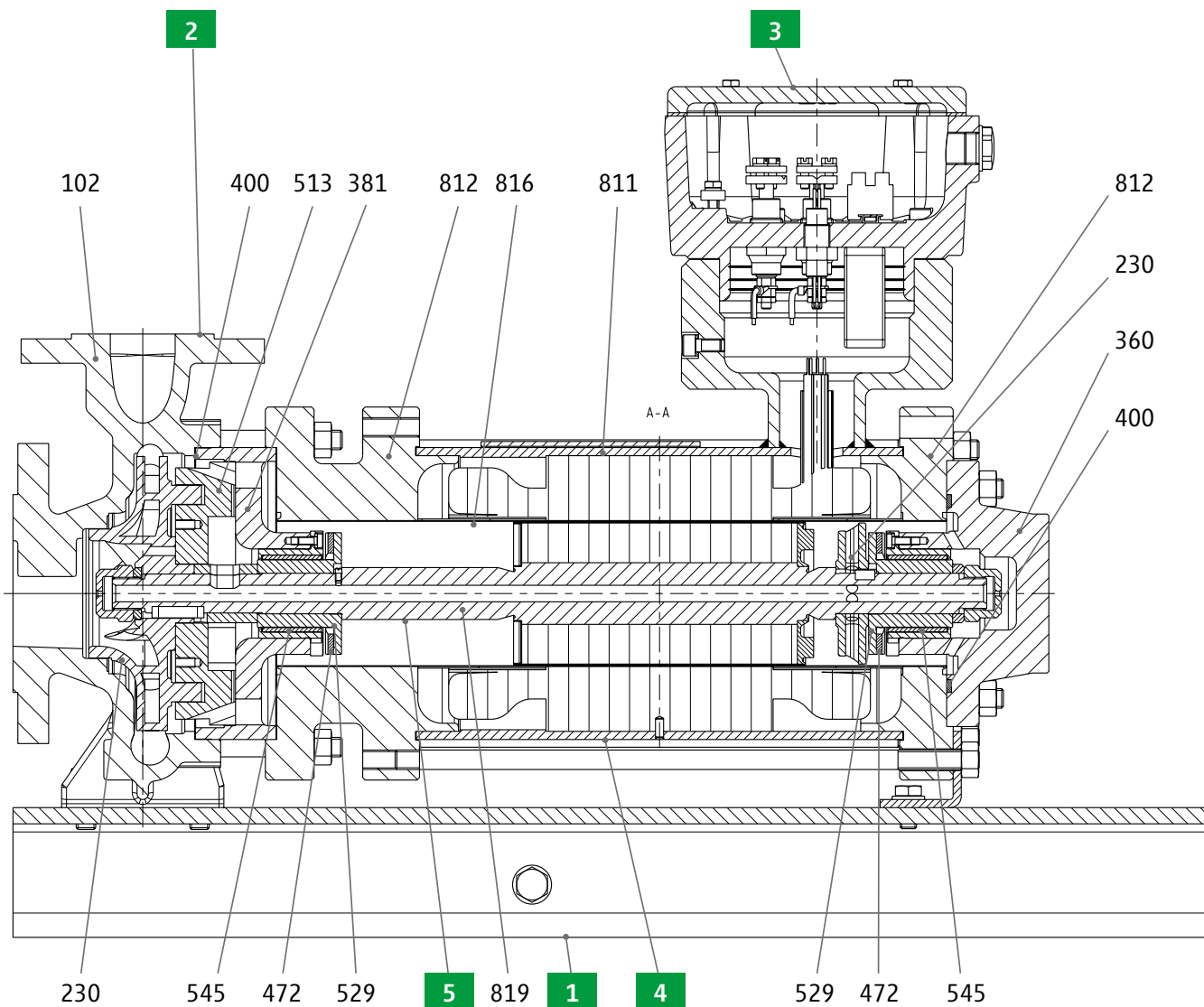
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Reduced part list



Number	Assembly drawing
1	Base plate
2	Hydraulics
3	Terminal box
4	Motor
5	Motor shaft

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## Reduced part list

VDMA Pos.	Name	Assembly	Assembly drawing
102	Volute casing	Hydraulics	<a href="#">2</a>
513	Wear ring insert	Hydraulics	<a href="#">2</a>
381	Bearing support	Hydraulics	<a href="#">2</a>
545	Bearing bush	Hydraulics	<a href="#">2</a>
400	Gasket	Hydraulics	<a href="#">2</a>

400	Spiral gasket	Motor	<a href="#">4</a>
816	Stator liner	Motor	<a href="#">4</a>
812	Motor casing cover, front	Motor	<a href="#">4</a>
812	Motor casing cover	Motor	<a href="#">4</a>
811	Motor casing	Motor	<a href="#">4</a>
360	Bearing cover	Motor	<a href="#">4</a>
545	Bearing bush	Motor	<a href="#">4</a>

Refer to the relevant assembly drawing for the full list of the complete parts. These form part of the standard documentation.

VDMA Pos.	Name	Assembly	Assembly drawing
819	Motor shaft	Motor shaft	<a href="#">5</a>
230	Impeller	Motor shaft	<a href="#">5</a>
529	Bearing sleeve	Motor shaft	<a href="#">5</a>
230	Auxiliary impeller (*)	Motor shaft	<a href="#">5</a>
472	Slide ring	Motor shaft	<a href="#">5</a>

(\*) only CNF

### Recommended spare parts stock

For two-year operation: **none**

For overhaul: **for each pump**

4 pcs. Pos. 400 gasket

2 pcs. Pos. 400 spiral gasket

2 pcs. Pos. 529 bearing sleeve

2 pcs. Pos. 545 bearing bush

2 pcs. Pos. 472 slide ring

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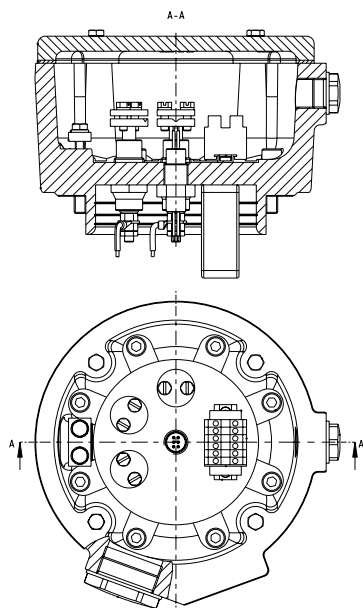




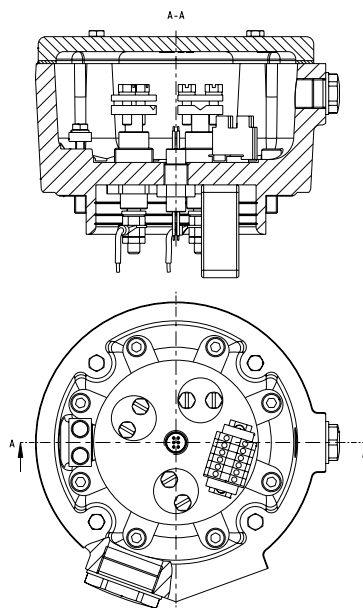
**Terminal box connections**

Motor rating	Terminal box size	Number and thread for cable gland		Clamping area for cable		Cable inlet connection		Connection cross-section for motor
		Motor	Monitoring	Motor	Monitoring	Motor	Monitoring Multiple feedthrough with 6 wires	
N34L-2	Size 54	1xM40x1.5	1xM20x1.5	Cable $\varnothing$ 17–28	Cable $\varnothing$ 6–13	3 x PLD 6 (M20 x 1.5)	1 x (M16x1)	max. 35 mm <sup>2</sup>
N34XL-2	Size 54							
N54XL-2	Size 54							
N64XL-2	Size 64	1xM40x1.5	1xM20x1.5	Cable $\varnothing$ 17–28	Cable $\varnothing$ 6–13	3 x PLD 8 (M26 x 1.5)	1 x (M16x1)	16–50 mm <sup>2</sup>

**Size 54**



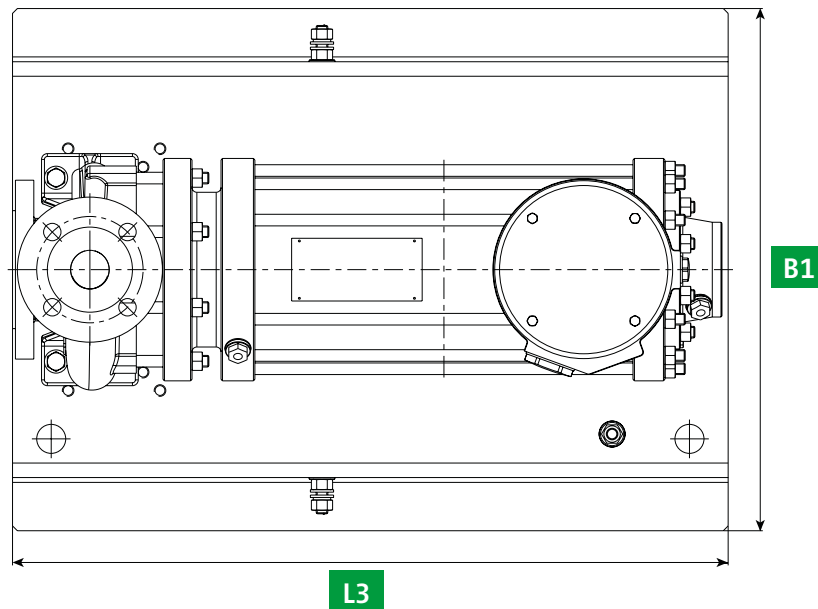
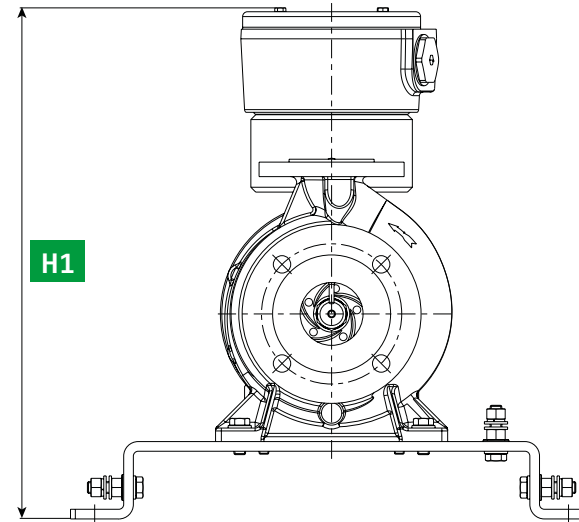
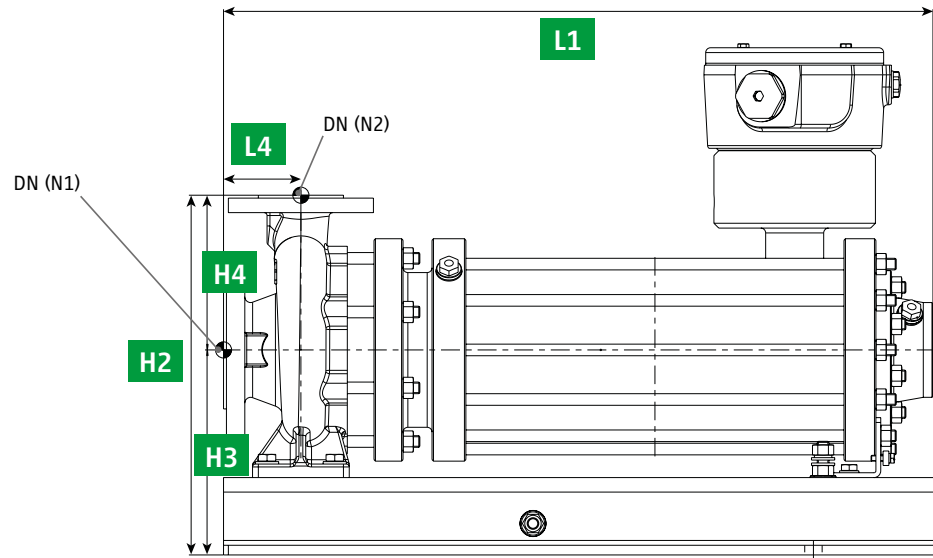
**Size 64**



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Collective measurement drawing



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## Collective measurement data

Hydraulics	Motor	H1	L1	H2	H3	H4	L4	L3	B1	DN (N1)	DN (N2)	Total approx. weight in kg
50-32-200	N34L-2	557	639	420	240	180	80	740	540	50	32	190
65-40-160	N34L-2	529	639	372	212	160	80	740	540	65	40	140
65-40-160	N34XL-2	529	734	372	212	160	80	740	540	65	40	200
65-40-160	N54XL-2	563	839	392	232	160	80	900	540	65	40	275
65-40-200	N34L-2	557	659	420	240	180	100	740	540	65	40	200
65-40-200	N34XL-2	557	754	420	240	180	100	740	540	65	40	215
65-40-200	N54XL-2	571	859	420	240	180	100	900	540	65	40	300
65-40-250	N34XL-2	557	768	485	260	225	100	740	540	65	40	225
65-40-250	N54XL-2	571	873	485	260	225	100	900	540	65	40	300
65-40-250	N64XL-2	610	976	485	260	225	100	1000	540	65	40	425
80-50-160	N34L-2	557	659	420	240	180	100	740	540	80	50	200
80-50-160	N34XL-2	557	754	420	240	180	100	740	540	80	50	200
80-50-160	N54XL-2	571	859	420	240	180	100	900	540	80	50	275
80-50-200	N34L-2	557	659	440	240	200	100	740	540	80	50	200
80-50-200	N34XL-2	557	754	440	240	200	100	740	540	80	50	225
80-50-200	N54XL-2	571	859	440	240	200	100	900	540	80	50	300
80-50-200	N64XL-2	610	964	460	260	200	100	1000	540	80	50	375
80-50-250	N34XL-2	557	793	485	260	225	125	740	540	80	50	250
80-50-250	N54XL-2	571	898	485	260	225	125	900	540	80	50	325
80-50-250	N64XL-2	610	1001	485	260	225	125	1000	540	80	50	400
100-65-200	N34XL-2	577	765	485	260	225	100	740	540	100	65	225
100-65-200	N54XL-2	591	865	485	260	225	100	900	540	100	65	300
100-65-200	N64XL-2	630	970	485	260	225	100	1000	540	100	65	425
100-65-250	N54XL-2	591	898	530	280	250	125	900	540	100	65	325
100-65-250	N64XL-2	630	1001	530	280	250	125	1000	540	100	65	425

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## Overview of the safety- and function-related monitoring equipment

Level monitoring of the pumped liquid for detecting and avoiding dry running



Level monitoring by / with:

- KSR magnetic float switch [LS]
- Vibration limit switch [LS]
- Optoelectronic liquid level limit transducer [LS]

Temperature monitoring for detecting and avoiding inadmissible high temperatures in the pump and the motor



Temperature monitoring by / with:

- Resistance thermometer PT100 [TI]
- Thermistor KL180 [TS]

Rotor position monitoring for detecting and avoiding axial wear



Rotor position monitoring by / with:

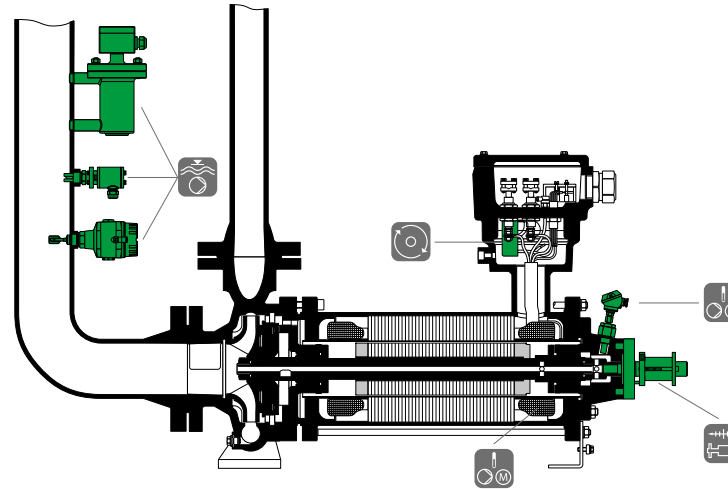
- ACS [GI]

Rotation monitoring for detecting and avoiding incorrect phase sequence



Rotation monitoring by / with:

- ROMi [GS]



Example shown

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## Options and accessories

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### Options, without delivery time extension

Gaskets	Gylon 3501 E
Flange designs	<ul style="list-style-type: none"> <li>■ Type D (with groove)</li> <li>■ Drilled according to ANSI 150 lbs / 300 lbs</li> </ul>
Drains	Drilled, closed with plugs

### Options, with delivery time extension

Voltages	500V / 50 Hz, 600V / 60 Hz
Winding protection	Resistance thermometer PT100 instead of KL180 (switching amplifier on request)
Drain with flange	Arrangement right / left (EN1092-1, type B1 / type D, ANSI 150 / 300 lbs RF)
Inducer	
Axial Control System ACS	

### Accessory

Level monitoring	<ul style="list-style-type: none"> <li>■ KSR magnetic float switch</li> <li>■ Vibration limit switch</li> <li>■ Optoelectronic liquid level limit transducer</li> </ul>
Temperature monitoring	<ul style="list-style-type: none"> <li>■ Resistance thermometer PT100</li> </ul>
Levelling disc with adjusting screws, Isoloc	
Qmax-orifice	
Base plate	is always a component of delivery
Connection for PT100	is always a component of delivery

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MODEL INFORMATION

# Contact

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[www.hermetic-pumpen.com](http://www.hermetic-pumpen.com)

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